

SITE C12: H841:02 DITCH EROSION

LEGAL LOCATION: **32-27-20-W4**

REFERENCE LOCATION
ALONG HIGHWAY: about 10km SE of Drumheller

UTM COORDINATES (NAD 83): **N 5,689,774 E 377,164**

AT FILE: **H841:02**

AT PLAN & PROFILE:

Date of Initial Observation: October 2000

Date of Previous Inspection: November 10, 2000 (KCCL)
(Inspected by) May 22, 2001 (KCCL)
May 16, 2002 (KCCL)
May 21, 2003 (KCCL)
May 18, 2004 (KCCL)

Instruments Installed: none

Instruments Operational: none

Reading Dates: none
(Read by)

Risk Assessment: $PF(9) * CF(1) = 9$

Last Updated by: Klohn Crippen Consultants Ltd. (KCCL)
Date: June 2004

Location and General Description of Instability

H841:02 is located about 10 km southeast of Drumheller on the approach down to the Rosebud River and the CNR line. The highway is located at the base of steep backslopes, which are about 10 m to 20 m high. The erosion feature was originally reported on October 18, 2000.

Prior to the initial site visit on November 10, 2000, some remediation work was completed in the north part of the ditch. This involved backfilling of the overdeepened ditch with fill material scraped from the backslope area. Minor flow check structures, about 0.3 m high were also constructed of fill at intervals down the ditch. The work ceased when the distance from the edge of the road reached the "clear zone" of about 9 m. We understand that problems with the landowner also contributed to the cessation of work. No work was undertaken in the south part of the ditch erosion.

Prior to the May 2001 inspection, some of the south portion of the ditch was backfilled. The work stopped however at a power pole location where the eroded ditch was outside the 9 m clear zone. The eroded section of the ditch is approximately 5 m deep and 10 m wide and extends over a distance of about 65 m. As the ditch grade flattens to the south, the depth of erosion tapers out and disappears.

In October 2002, gravel filled Geo-Cell protection was placed on the surface and the erosion channel was backfilled. Two gabion basket weirs were also provided. The approximate project cost was about \$45,000. By May 2003, some erosion was occurring beside the mat and repairs were carried out later in the year.

Geotechnical Conditions

Highly erodable silts and clays of the Horseshoe Canyon Formation.

Chronology (Refer to Section G for Further Information)

2000

Up to 5 m deep erosion channel in highway ditch.

Fall 2002

Gravel filled Geo-Cell protection was installed and erosion channel backfilled. Two gabion basket weirs were installed: one located at about 70 m from the downstream end and about 150 m from the upstream end, and one about 225 m from the upstream end of the protected section.

Summer 2003

Maintenance measures carried out to erosion protection.

Reports and Documents

May 2001 Inspection Report (KCCL)

May 2002 Inspection Report (KCCL)

May 2003 Inspection Form (KCCL)

May 2004 Inspection Form (KCCL)

Ditch Erosion Remediation Study and Recommendations (KCCL), March 27, 2001.

Ditch Erosion Protection Recommendations (KCCL), July 18, 2001 revised July 8, 2002.